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ABSTRACT

This resource guide of annotated references on traumatic brain injury (TBI) was created to help educators locate information from such disciplines as neurology, neuropsychology, rehabilitation, and pediatric medicine. Twenty-four resources published from 1990 to 1994 are listed, with annotations. The resources include research reports/reviews, edited books, conference presentations, textbooks, and journal articles. A conclusion points out that the integration of the medical, rehabilitation, and educational perspectives is necessary for the TBI student to function at the highest level possible. The conclusion encourages special educators to use single case research designs to contribute to knowledge of TBI students in the school setting. Appendices list characteristics of TBI student which affect school functioning, Rancho Los Amigos levels of cognitive functioning, names and addresses of 10 resource organizations, and data about the literature search that was conducted to identify the 24 resources. Contains 12 references. (JDD)

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Traumatic Brain Injury and Special Education:

An Information Resource Guide

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October 1994

Running Head: TBI INFORMATION RESOURCE GUIDE

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Abstract

The identification of traumatic brain injury (TBI) as a categorical disability by the Individuals with Disabilities Education Act, 1990 (IDEA) has increased the awareness of educators that students who have survived a traumatic brain injury have unique characteristics and need specialized education services. However, information about TBI is found in the literature of numerous disciplines (e.g. neurology, neuropsychology, rehabilitation, pediatric medicine, etc.) which are often unfamiliar to educators. Therefore, educators need for a reference work to guide them in the locating and selecting TBI information. This resource guide of annotated references has been created to meet this need.

Twenty-four key resources published between January, 1990 and September, 1994, listed here are to help educators develop expertise in TBI. Entries include research reports/reviews, edited books, conference presentations, text books, and journal articles. Specific audiences who will find this resource guide useful include classroom teachers, special educators, school psychologists, speech/language specialists, physical therapists, administrators, and researchers.

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Traumatic Brain Injury and Special Education: An Information Resource Guide

The purpose of this Information Resource Guide is to allow educators to efficiently find and select current information on traumatic brain injury (TBI). In the past, educators were misinformed or underinformed on the characteristics of students with TBI (See Appendix A) and appropriate educational services for these students. The inclusion of TBI as a category of disability in the Individuals with Disabilities Act, 1990 (IDEA) has increased the awareness of educators that students with TBI have unique characteristics and need specialized education services. Due to the medical nature of TBI, information about this disability is found in the literature of disciplines such as neurology, neuropsychology, rehabilitation, and pediatric medicine. As most educators are unfamiliar with these literature bases, it has been difficult to efficiently find and select useful information for a school setting.

The literature search procedures used to prepare this Information Resource Guide are described in the next section. Following the literature search explanation, the twenty-four references selected for inclusion are listed with annotation. In the final section, the author suggests ways for educators to be involved in the development of appropriate educational practices for students with TBI.

The Literature Search Process

Procedures and Results

Data base searches. The literature search process was begun with computer searches of the following data bases: ERIC, PsycLIT, MEDLINE, SOCIAL SCIENCE INDEX, and GOVERNMENT DOCUMENTS. As each data base is organized differently, unique search terms were used for each one. Each search was narrowed when necessary by using the combination of terms shown in the summary tables in Appendix B.

The abstracts for the materials located were scanned to determine the appropriateness of each source for this project. Many duplicate sources between the

databases were found and deleted. The 155 sources which were selected for careful reading met three criteria: 1) the subject population was school-aged (3-21 years); 2) the context was applicable to classroom instruction; 3) the publication date was between 1987 and 1994.

Ancestral searches. For each reference that was obtained, its reference list was scanned for other related references.

Hand searches. For the years 1987-1994 the table of contents of each volume for the years 1987-1994 of the following journals was searched for additional references:
Journal of Learning Disabilities; Journal of Head Trauma Rehabilitation; Brain Injury; Archives of Physical Medicine and Rehabilitation.

Coding process. Each source was reviewed by the author and classified according to the following criteria: type of source (primary or secondary), intended audience, estimated reading level, predicted users in education, and summary of contents.

Final Selection of Materials to be Included

The search process yielded 155 potential references for inclusion in this project. Those which specifically dealt with adult vocational issues were judged not to fit the criterion of being directly related to issues facing those who work with school-aged TBI students and thus omitted. Sources which dealt with learning in the early stages of recovery (El Rancho Levels I-IV; see Appendix C) were also omitted as students at these phases of recovery will most likely be served in rehabilitation facilities, not schools. Position papers, evaluation studies of rehabilitation facilities, and reports on the Pediatric Trauma Registry were eliminated as well.

The remaining pool of 140 references were categorized as follows:

Category	Number of References Found
I. Brain injury in children & adolescents	24
II. Sequela (after-effects) of brain injury	21
III. Family issues	25
IV. Rehabilitation issues	20
V. Educational assessment	22
VI. Educational reintegration	24
VII. Educational intervention strategies	35
VIII. Legal issues	9
IX. Empirical/research studies related to learning after TBI	33

References were placed in more than one category when appropriate. Therefore, some references, particularly texts and edited volumes, are counted more than once.

From this group of sources, those selected for inclusion in this resource guide met three final criteria:

The source

1) appears in 3 or more of the categories listed above or summarizes the individual category well;

2) was published between January, 1990 - September, 1994;

3) relates directly to providing appropriate educational services as set forth in IDEA 1990.

Entries include research reports/reviews, edited books, conference presentations, text books, and journal articles. Specific audiences who will find this resource guide useful include classroom teachers, special educators, school psychologists, speech/language specialists, physical therapists, administrators, and researchers.

Selected References with Annotation

Bengali, V. (1992). Head injury in children and adolescents: A resource and review for school and allied health professionals (2nd ed.). Brandon, VT: Clinical Psychology.

This recently revised book presents a multidisciplinary view of the education of traumatically brain injured (TBI) students. The author has expertise in both special education and clinical practice with students with TBI. The author discusses medical, physiological, rehabilitative, neuropsychological, and behavioral dimensions of TBI. Rationale and methods for the school reintegration and individualized instruction are provided. Ways for the school to participate in the ongoing rehabilitation process are explained. The recommended practices are based on the author's experience supported with available research data. The extensive reference list includes over 600 entries. This book is recommended as a graduate level text book.

Beukelman, D. R., & Yorkston, K. M. (1991). Communication disorders following traumatic brain injury: Management of cognitive, language, and motor impairments. Austin, TX: Pro-Ed.

These editors have complied information on severe TBI to aid in the preprofessional training of speech/language pathologists who will serve this population. The book is divided into three sections which discuss service delivery, cognitive/language issues, and motor issues. Individual chapters summarize related research, outline assessment procedures, and detail intervention practices. The text is a through introduction to the educational/vocational issues of TBI and language/speech assessment and intervention practices for adolescents and adults. The text is an excellent resource for all secondary school personnel who serve students with TBI that have speech/language goals.

Bigler, E. D. (Ed.). (1990). Traumatic brain injury: Mechanisms of damage, assessment, intervention, and outcomes. Austin, TX: PRO-ED.

This book is the compilation of a series of articles published in the Journal of Learning Disabilities during 1987 and 1988. It is a comprehensive source of information on traumatic brain injury in children and adults which includes empirical research reports and opinion papers written by experts in each area. Topics discussed include mechanisms of injury, assessment methods and issues, intervention strategies and integrated case management, legal issues, and family concerns. This book is recommended as a graduate level text.

Blosser, J. L., & DePompei, R. (1991). Preparing educational professionals for meeting the needs of students with traumatic brain injury. Journal of Head Trauma rehabilitation, 6(1), 73-82.

This article first establishes the need for educators to be trained to meet the needs of a TBI

student in the school environment. Teaching strategies for TBI students are listed. Next, methods are suggested for developing training programs. Goals and objectives for an educator training program are provided.

Carney, J. & Schoenbrodt, L. (1994). Educational implications of traumatic brain injury. Pediatric Annals, 23, 47-52.

This article provides the pediatrician with information about the impact of neurobehavioral sequelae on education. The relevant research and recommendations in the areas of cognition, academic achievement, language, and motor functions are discussed. Next educational assessment and trends in educational service delivery is explained. The role of the community pediatrician in helping to successfully reintegrate the student into the school and community is pointed out. This article is useful not only for pediatricians, but also for TBI

orientation for special education team members and school administrators, as well.

Dalby, P. R., & Obrzut, J. E. (1991). Epidemiologic characteristics and sequelae of closed head-injured children and adolescents: A review. Developmental Neuropsychology, 7(1), 35-68. This article reviews the research literature to summarize the current knowledge of epidemiology, including age, sex, etiology, and risk factors, for children and adolescents with TBI. Also the research findings on motor, speech/language, cognitive outcomes, behavioral aspects and neuropsychological assessment for this population are reported. The authors conclude that there is a pattern of cognitive sequelae, but there is not an apparent pattern of behavioral sequelae. More research in areas which influence behavior is recommended.

Gerring, J.P., & Carney, J.M. (1992). Head trauma: Strategies for educational reintegration (2nd ed.). San Diego: Singular Publishing Group, Inc.

This revision of the popular 1987 edition by Rosen & Gerring, expands and updates the material covered in the first edition. The present authors have based this text on a literature review and their experience as members of a pediatric rehabilitation team at the Kennedy Krieger Institute. The eight chapters in the text are equally divided to provide medical background (Dr. Gerring is a physician) and educational strategies. The educational information includes implications of sequelae of head injury on educational programming, school reintegration, educational evaluation procedures, intervention strategies, and a review of questions frequently asked by school personnel. This book is highly recommended for anyone needing a current, in-depth

knowledge of educational issues related to TBI.

Hanson, S. L., & Clippard, D. (1992). Assessment of children with traumatic brain injury: Planning for school reentry. Physical medicine and Rehabilitation: State of the Art Reviews, 6(3),483-494.

This is a comprehensive review of TBI assessment issues. Epidemiology of pediatric brain injury and common neurobehavioral problems that can influence academic planning are given in brief review of the supporting literature. Then the authors discuss educational assessment issues in depth. They stress the dynamic nature of TBI and the integration of data from a multidisciplinary evaluation to develop school recommendations. This article is recommended for both rehabilitation and educational professionals responsible for a student's transition plan from rehabilitation to school programs.

Kreutzer, S. (Speaker). (1993). Integrating research and clinical practices (Cassette Recording No. S28). Cambridge, MA: Cambridge Transcriptions. This cassette recording is from a sub-plenary session of the National Head Injury Foundation Symposium held November 7-10, 1993. Dr. Kreutzer is a professor and researcher at the Medical College of Virginia. He presents practical strategies for conducting research activities while maintaining clinical practice. Topics include developing research questions, methodology and single subject designs, basic statistics for small samples, organizing research teams, and developing resources on a limited budget. The writing, presentation, and publication of the findings are also explored. This information will be useful to all researchers.

Lehr, E. (1990). Psychological management of traumatic brain injuries in children and adolescents. Rockville, MD: Aspen.

This book presents the research and clinical findings on head injury from the acute care setting to the return to home and school. It gives information on the long-term impact of childhood head injury, as well as, behavioral and psychosocial aspects of head injury. This book is written for medical personnel, rehabilitation specialists, and researchers.

Lehr, E. & Savage, R. (1990). Community and school integration from a developmental perspective. In J. Kreutzer, & P. Wehman (Eds.), Community Integration Following Traumatic Brain Injury (pp. 301-310). Baltimore, MD: Paul H. Brookes Publishing.

The authors discuss the unique pediatric issues of TBI within the social context of home, school, and community. Causes, incidence, and the effects of traumatic brain injury during each developmental

stage are reviewed. Attention is drawn to the lack of intervention for persons with mild head injuries. School psychologists and especially case managers will benefit from this discussion.

McCaul, E., & Osher, T. W. (1993). Analysis of state definitions and guidelines concerning students with traumatic brain injury: A brief report (Contract NO. HS92015001). Alexandria, VA: National Association of State Directors of Special Education.

This evaluation report summarizes how individual States are implementing IDEA with regard to TBI. Examples of the States' definitions and assessment guidelines for the new category of traumatic brain injury are given. The four sections detail 1) the background for the study, 2) questions for analysis, 3) evaluation methods, and 4) findings and implications for implementations. It identifies a need to provide training and information for effective decision making to local districts.

Milton, S. B., Scaglione, C., Flanagan, T., Cox, J. I., & Rudnick, F. D. (1991). Functional evaluation of adolescent students with traumatic brain injury. Journal of Head Trauma Rehabilitation, 6(1), 35-46.

The authors note that traditional assessment by an interdisciplinary team does not generally deal with functional skills the TBI student will need for meeting the demands of a classroom setting. The blending of interdisciplinary skills and resources is needed to effectively understand the needs of the student with TBI through descriptive assessment techniques. The authors outline assessment procedures in four skill areas and give examples in each area. The areas used are skill integration, critical thinking, visual processing, and conversational processing. The step-by-step explanation and uses of case studies make this a readily understandable approach to functional assessment.

Mira, M. P., Tucker, B. F., & Tyler, J. S. (1992). Traumatic brain injury in children and adolescents: A Sourcebook for teachers and other school personnel. Austin, TX: PRO-ED.

This text provides an overview of practical, professional approaches to school transition and intervention strategies for preschool to adolescent-aged students with moderate to severe traumatic brain injury. This introductory level text is for classroom teachers and special educators who are responsible for effectively meeting the needs of students with TBI in the classroom. Useful supplemental information in the appendices includes an annotated bibliography, a re-entry preparation checklist for evaluating physical facilities, a checklist for school re-entry procedures, a sample evaluation summary, and a sample neuropsychological report.

Pieper, B. (1991). Traumatic brain injury: What the teacher needs to know (Contract No. HI-33A80023). Albany, NY: New York State Head Injury Association, National Institute on Disability and Rehabilitation Research. (ERIC Document Reprøduction Service No. ED 341 172)

This guide is intended for the classroom teacher and presents incidence, characteristics, assessment issues, and legal responsibilities related to TBI. Descriptions of successful teaching strategies are given. Strategy categories given include developing thinking skills, developing compensatory skills, coaching the thinking process, and applying behavioral principles and strategies.

Rivera, J. B., Jaffe, K. M., Polissar, N. L., Fay, G. C., Martin, K. M., Shurtleff, H. A., & Liao, S. (1993). Family functioning and injury severity as predictors of child functioning one year following traumatic brain injury. Archives of Physical Medicine and Rehabilitation, 74, 1047-1055.

This current research measured 94 children's adaptive functioning and social competence one year after TBI injury. Then, these assessment scores were related to measures of family functioning and injury severity. One of the findings was that severely injured children and less severely injured children who were older and from poorly adapted families had similar declines in functioning. This and other findings from this study suggest which children are at risk for poorer adaption following TBI. Those children so identified, should receive the appropriate

support services to encourage the best recovery.

Rivera, J. B., Jaffe, K. M., Polissar, N. L., Fay, G. C., Martin, K. M., Shurtleff, H. A., & Liao, S. (1994). Family functioning and children's academic performance and behavior problems in the year following traumatic brain injury. Archives of Physical Medicine and Rehabilitation, 75, 369-379.

This article reports the research results from a study of families of 94 children with TBI on the relationship of family functioning, academic performance, and behavior problems. The statistical analysis showed that injury severity was related to declines in academic performance, but not to behavior problems. Most of changes in behavior were explained by preinjury factors and or family factors. The assessment of preinjury factors is recommended.

Savage, R. C. (1991). Identification, classification, and placement issues for students with traumatic brain injuries. Journal of Head Trauma Rehabilitation, 6(1), 1-9.

This article discusses key issues and concerns educators and rehabilitation professionals must deal with when students re-enter school after TBI. The issues of misidentification by educational systems; the reliability of medical classification of mild, moderate, and severe within the school context; legal challenges of differentiation between academic instruction and rehabilitative therapies; and transition to school are discussed.

Savage, R. C., & Wolcott, G. F. (Eds.). (1994). Educational dimensions of acquired brain injury. Austin, TX: PRO-ED.

This text is for teachers and parents by professionals who work with brain injured individuals. It presents specific models and strategies for responding to the educational and lifelong needs of those with brain

injuries. The five sections present the following dimensions of TBI: an overview, cognitive, psychosocial-behavioral, neuromotor, and school and community. The text is a compilation of TBI literature, much of which was first published during the mid-1980's. The text offers theoretical models for cognitive intervention, behavioral deficits and neuroeducation. This text is recommended for use in an undergraduate teacher training course or in-service program on TBI.

Shaw, S. R. & Yingst, C. A. (1992). Assessing children with traumatic brain injuries: Integrating educational and medical issues. Diagnostique, 17, 255-265.

The authors give an overview of TBI and then relate relevant needs (e.g. rapid cognitive, emotional, and physical changes which TBI children undergo up to 2 years post-incident) to assessment practices. They outline four areas in which

information is needed to plan educational intervention and practice. These areas are as follows: premorbid functioning, current functioning, medical issues, and family support. This article is written for the school psychologist and gives information that each member of a diagnostic team should know.

Stensma, M. (1992). Getting the student with head injuries back in school: Strategies for the classroom. Intervention in school and clinic, 27(4), 207-210.

After establishing that a trasition program is necessary when a student with TBI returns to school, the author outlines specific intervention strategies in the common deficit areas of structure, abstraction, attention and concentration, tranistion, writing, and processing speed. The strategies suggested could be implemented by classroom teacher and special educator. This article should prove useful to

those working with TBI students in an inclusion program.

Tucker, B. F., & Colson, S. E. (1992). Traumatic brain injury: An overview of school re-entry. Intervention in School and Clinic, 27(4), 198-206. This article provides an overview of the characteristics of the TBI student, outlines problems associated with school re-entry, and offers recommendations for effective interventions. Additionally, the characteristics of the learning disabled student and one with TBI are contrasted. This article is an excellent resource for the classroom teacher.

Tyler, J. S. (1992). Traumatic head injury: Inservice training module. Kansas City: University of Kansas Medical Center, Children's Rehabilitation Unit.
Tyler developed this training module to provide information about TBI to educators who will have direct contact with children

and adolescents who have sustained TBI. The module includes a presentation guide, overhead transparency masters, participant handout masters, videotape on school re-entry, a case study activity, and a post-test assessment. This is an excellent training resource.

Tyler, J. S. (Project Director). (1993). Perspectives on traumatic brain injury [videotape]. Kansas City, KS: Kansas State Department of Education.

This 25-minute videotape use a case study of an older elementary student who was involved in a bicycle accident to present an overview of TBI. The introduction presents incidence information, P.L. 101-476 definition of TBI, and causes of TBI by age group. Then the viewer is introduced to Jon Micheal, the TBI survivor. Interviews are used to give the perspectives of the survivor, family members, peers, special education teachers, and school

psychologist. Each person interviewed relates how the life-long changes which result from TBI affect their relationship to the student. This videotape is well produced and is an excellent introduction/overview of TBI family and educational issues.

Conclusion

As pointed out by Shaw & Yingst (1992), one does not have to be a neurologist or neuropsychologist to work with students who have experienced TBI. In fact educators are the largest group of service providers to students with TBI (Hanson & Clippard, 1992). The majority of school-aged, brain injury survivors return to the regular school system without ever receiving rehabilitation services. Educators must be alert for the circumstances and signs of head injury, and ask the appropriate questions which could lead to referral and placement in the TBI category. For students who are currently recognized as having TBI, educators need to be aware of the medical, neurological, and psychological issues which shape each individual TBI case (see Appendix D for organizations which can give information useful for specific cases). The educator must understand the relevance of these issues to plan effective educational programs.

Because of the dynamic nature of TBI, educators need to actively participate in the ongoing case management for students with TBI. The integration of

the medical, rehabilitation, and educational perspectives is necessary for the TBI student to function at the highest levels possible within the educational system and community. Collaboration with professionals in each respective profession is required.

Within the educational community, we need to establish the efficacy of educational interventions used with TBI students. Beginning with the practices which we know to be effective with other disability populations which have similar characteristics, we need to document that these interventions and strategies are also effective with TBI. One way to accomplish this goal is for special educators to become more knowledgeable of single case research design and to use it to contribute to our knowledge of TBI students in the school setting.

Providing appropriate education for the student with TBI is a challenging task, but one which is possible to attain. Educators have a vital role in providing the fullest range of opportunities possible to school-aged survivors of TBI.

Appendix A

Characteristics of TBI Students Which Effect School Functioning

The characteristics of children with TBI are heterogenous. No two surviors have the same characteristics in the same combinations with with same severity. Behavior after TBI is a complex interaction of the severity of the injury, the location of the injury, and the behavior patterns before the injury. These interactions are not well understood (Shaw & Yingst, 1992).

The following observations reported in the literature distinguish TBI from other disability categories:

* The student has a developmental history which includes a period of normal development (Bengali, 1992)
* The cause of the disability is known and happens suddenly (Mira, Tucker, & Tyler, 1992)
* Any behavioral or cognitive problems which exist before the injury are likely to be intensified

after TBI (Chadwick, et al. 1981; Hynd & Obzrut, 1981)

* The student with TBI often has difficulty recognizing and accepting post-injury deficits (Rosen & Gerring, 1986)
* There is a coexistence of cognitive, sensory, motor, behavioral, and/or emotional complications (Bengali, 1992)
* Problems with reasoning, organization of thoughts, cause-effect relationships, and problem solving are pronounced (Lezak, 1983)
* Mild to severe problems with memory and new learning are very common (Chadwick, Rutter, Shaffer, & Shrout, 1981)
* Discrepancies in ability levels are pronounced (Lehr, 1990)
* Mild to severe speech/language problems often exist (Baxter, Cohen, & Ylvisaker, 1985; Lezak, 1983)
* The student's emotional expressions are unpredictable and exaggerated (Boll, 1982)

* High levels of fatigue are often observed even when no medication is being used (Hynd & Obzrut, 1981; Hynd & Willis, 1988; Telzrow, 1987)
* Headaches may last up to two years following the injury (Hynd & Willis, 1988; Telzrow, 1987)

Appendix A References

Baxter, R., Cohen, S., & Ylvisaker, M. (1985). Comprehensive cognitive assessment. In M. Ylvisaker (Ed.), Head injury rehabilitation: Children and adolescents (pp. 247-275). San Diego: College-Hill Press.

Bengali, V. (1992). Head injury in children and adolescents: A Resource and review for school and allied professional (2nd ed.). Brandon, VT: Clinical Psychology Publishing Co., Inc.

Boll, T. J. (1982). Behavioral sequelae of head injury. In P. Cooper (Ed.), Head injury (pp. 363-377). Baltimore: Williams & Wilkins.

Chadwick, O., Rutter, M., Shaffer, D., & Shrout, P. E. (1981). A prospective study of children with head injuries: IV. Specific cognitive deficits. Journal of Clinical Neuropsychology, 3, 101-120.

Hynd, G. W., & Obrzut, J. E. (Eds.) (1981). Neuropsychological assessment and the school-aged child: Issues and procedures. New York: Grune & Stratton.

Hynd, G. W., & Willis, W. G., (1988). Pediatric neuropsychology. Orlando, FL: Grune & Stratton.

Lehr, E. (1990). Cognitive aspects. In E. Lehr (Ed.), Psychological management of traumatic brain injuries in children and adolescents (pp. 99-132). Rockville, MD: Aspen.

Lezak, M. D. (1987). Neuropsychological assessment. New York: Oxford University Press.

Mira, M. P., Tucker, B. F., & Tyler, J. S. (1992). Traumatic brain injury in children and adolescents: A Sourcebook for teachers

and other school personnel. Austin, TX: Pro-Ed.

Rosen, C. D., & Gerring, J. P. (1986). Head trauma educational reintegration. Boston: College-Hill.

Shaw, S. R., & Yingst, C. A. (1992). Assessing children with traumatic brain injuries: Integrating educational and medical issues. Diagnostique, 17, 255-265.

Telzrow, C. (1987). Management of academic and educational problems in head injury. Journal of Learning Disabilities, 20(9), 536-545.

Appendix B - Data Base Literature Search Result Tables

Each summary table gives the name of the data base (and when necessary subsections of that data base), the search term combinations used, and the number of references located by the specific search.

Table I. PsycLIT

Search Terms	Journal Article 1987-6/94	Book Chapter 1987-94	Journal Article 1974-86
Head injury & Special Education	8	0	2
Head injury & Special Education	6	3	1
Traumatic Brain Injury & Special Education	6	0	0
Traumatic Brain Injury & Cognitive Rehabilitation	21	24	0
Head Injury & Cognitive Rehabilitation	65	19	7
Brain injuries & Special Education	7	1	19
Brain Damage & Cognitive Rehabilitation	55	25	4
Brain Injury & Cognitive Rehabilitation	49	35	3
Brain Injuries & Cognitive Rehabilitation	9	4	0
Brain Damage & Special Education	6	5	19

Table II. ERIC

Search Term Combinations used	Number of references located
Traumatic Brain injury	67
Traumatic Brain injury & Special Education	19
Head Injury & Special Education	17
Head Injury & Education	41
Neurological Impairments & Education	45

Table III. MEDLINE

Search Terms	1990	1991	1992	1993
Brain injuries /Rehabilitation	62	68	76	53
Head Injuries/Rehabilitation	89	87	99	76

Table IV. SOCIAL SCIENCE INDEX

Search Terms	# Items Located
Traumatic Brain Injury	13

Table. V. GOVERNMENT DOCUMENTS

Search Term	# Items Located
Traumatic Brain Injury	15

Appendix C

Rancho Los Amigos Levels of Cognitive Functioning

Below is an 8-point scale used in rehabilitation facilities to describe the recovery process after a head injury.

RANCHO LOS AMIGOS LEVELS OF COGNITIVE FUNCTIONING

I. no response
II. generalized response
III. localized response
IV. confused, agitated
V. confused, inappropriate, nonagitated
VI. confused, inappropriate
VII. automatic, appropriate
VIII. purposeful, appropriate

Appendix D

Organizations to Contact for Additional Resources

American Foundation for the Blind
15 West 16th Street
New York, NY 10011
(212) 620-2000

American Physical Therapy Association
1111 North Fairfax Street
Alexandria, VA 22314
(703) 684-2782

American Occupational Therapy Association
1383 Picard Drive, P.O. Box 1735
Rockville, MD 20850
(301) 948-9626

American Speech, Language & Hearing Association
10801 Rockville Pike
Rockville, MD 20852
(301) 897-5700

Association for the Advancement of
Rehabilitation Technology
101 Connecticut Avenue, N.W., Suite 700
Washington, D. C. 20036
(202) 857-1199

(Continued on the next page)

Center for Special Education Technology
Council for Exceptional Children
1929 Association Drive
Reston, VA 22091
(703) 620-3600

Epilepsy Foundation of America
4351 Garden City Drive, Suite 406
Landover, MD 20785
(301) 459-3700

Learning Disability Association of America
4516 Library Road
Pittsburgh, PA 15234
(412) 341-1515

National Head Injury Foundation
1140 Connecticut Avenue, N. W., Suite 812
Washington, D. C. 20036
(800) 444-6443

National Rehabilitation Information Center
8455 Colesville Road, Suite 935
Silver Spring, MD 20910-3319
(800) 346-2742